



City of West Linn, Oregon

NPDES MS4 Permit Annual Report

2019 – 2020 Reporting Year

Prepared for the


Oregon Department of Environmental Quality December 9, 2020

City of West Linn

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) ANNUAL REPORT

JULY 1ST, 2019 – June 30th, 2020

I, the undersigned, hereby submit this NPDES MS4 Annual Report in accordance with Permit No. 101348. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.



Michael Handwell

Date

12-21-20

Environmental Services Supervisor
City of West Linn Public Works

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1.0 INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of West Linn (City) through the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. 101348, issued to Clackamas County and its 12 co-permittees. Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual Stormwater Management Plans (SWMP).

This annual report fulfills the reporting requirement under the City's Phase 1 NPDES MS4 permit for the reporting period of **July 1, 2019 to June 30, 2020**. This reporting period is the seventh year implementing the 2012 NPDES MS4 Permit (2012 Permit). The 2012 Permit expired on March 1, 2017 and is in administrative extension. Permit reissuance is anticipated in 2021.

1.1 NPDES MS4 Permit Background

The City's NPDES MS4 permit was originally issued in 1995 to Clackamas County's co-permittees including the cities of West Linn, Lake Oswego, Gladstone, Milwaukie, Oregon City, Wilsonville, Happy Valley, Johnson City, and Rivergrove, the Oak Lodge Water Services District (OLWSD), Clackamas County Service District No. 1 (CCSD#1) and Surface Water Management Agency of Clackamas County (SWMACC). The City's NPDES MS4 permit was most recently reissued March 16, 2012 after a multi-year negotiation process with DEQ and an additional year long delay related to an appeal. The 2012 Permit was not appealed and thus maintains an effective date of March 16, 2012. The 2012 Permit also includes the City's Stormwater Management Plan (SWMP), which was approved by DEQ on May 16th, 2012. On February 28, 2017, the City submitted to DEQ a Permit Renewal Application. Although an updated SWMP was prepared and submitted as part of the Permit Renewal Application, the City's 2012 SWMP remains the effective NPDES MS4 program document for purposes of this annual report. During this administrative extension period, the City is continuing to implement its stormwater program in accordance with the 2012 Permit.

1.2 Document Organization

The table below outlines the organization of this annual report document, with respect to the annual reporting requirements per Schedule B.5 of the City's 2012 Permit. Specific Best Management Practices (BMPs) and activities are summarized in Appendix A. The City's TMDL Implementation Plan Annual Report for the Willamette and Tualatin River Basins is included as Appendix C.

The City, along with all Oregonians, is facing unprecedented challenges in responding to the COVID-19 pandemic to protect the health of individuals and the greater community. These extraordinary circumstances require measures that impact the City's ability to strictly comply with its Permit. These measures include implementing social distancing plans, staff reassignment and rescheduling, and working remotely when possible. Due to these circumstances, the City was unable to comply with or fully execute the following BMPs...

Education and Outreach- See Tracking Measures 3 and 4 of Element 4 in Appendix A.

Table 1 – 2012 NPDES MS4 Annual Reporting Requirements

Annual Reporting Requirements from Schedule B.5.a. - j.		Location in document
a.	The status of implementing the Stormwater Management Program (SWMP) and each SWMP element, including progress in meeting the measurable goals in the SWMP.	Appendix A
b.	Status or results or both of any public education effectiveness evaluation conducted during the reporting year and a summary of how results were or will be used for adaptive management.	Appendix A – Element 4
c.	A summary of the adaptive management process implementation during the reporting year, including any proposed changes to the SWMP (e.g., new BMPs) identified through implementation of the adaptive management process.	2.0
d.	Any proposed changes to SWMP program elements that are designed to reduce Total Maximum Daily Loads (TMDL) pollutants to the Maximum Extent Practicable (MEP).	None this reporting year
e.	A summary of total stormwater program expenditures and funding sources over the reporting fiscal year and those anticipated in the next fiscal year.	3.0
f.	A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year and any assessments or evaluations conducted.	4.1, 6.1 & Appendix B
g.	Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	None this reporting year
h.	A summary describing the number and nature of enforcement actions, inspections, and public education programs, including results of ongoing field screening and follow-up activities related to illicit discharges.	6.1 & Appendix A – Element 1
i.	A summary, as related to MS4 discharges, describing land use changes, Urban Growth Boundary (UGB) expansion, land annexations, and new development activities that occurred within these areas during the reporting year. The number of new post-construction permits issued and an estimate of the total new and replaced impervious surface area related to development projects that commenced during the reporting year.	5.0 & Table 4
j.	A summary, as related to MS4 discharges, describing concept planning or other activities conducted in preparation of UGB expansion or land annexation, if anticipated for the following year.	None this reporting year

2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION

In accordance with the issuance of the City's NPDES MS4 permit in 2012, the City was required to document their adaptive management approach to assess annually and modify, as necessary, existing and new SWMP components. The City submitted their adaptive management approach to DEQ on November 1st, 2012, as required in the 2012 Permit.

Historically, the City has implemented adaptive management principals to annually refine implementation methods and data collection activities in conjunction with their effective SWMP and BMPs. More significant modifications to SWMP activities occur every 5 years, in conjunction with the permit renewal application and updated permit requirements. The City's adaptive management approach maintains consistency with the City's historical approach for implementing adaptive management principals.

Annually, as the City completes their NPDES MS4 annual report, the City reviews SWMP implementation through BMP-specific measurable goals and tracking measures. The City collects data and feedback from staff responsible for implementing and reporting on each BMP to gauge whether implementation was deemed to be effective or whether there are suggested improvements to be made. Suggested adjustments to BMP implementation may include consideration of resource availability, budget/funding, and overall need. Every 5 years, during the permit renewal process and SWMP update effort, additional factors are considered as part of the City's overall adaptive management process. These factors include more detailed information related to BMP implementation, such as:

- Is technology or information available that would help improve or refine BMPs?
- How representative are the measurable goals and tracking measures to the BMP objective?
- Are resources available to make changes to the measurable goals and BMP objectives?

Additionally, technical investigations and studies required in the permit also inform adaptive management changes. During the 2012-2017 permit term, such studies included a water quality trends analysis, pollutant load reduction evaluation, hydromodification assessment, and a retrofit assessment. All studies were submitted according to the 2012 Permit deadlines. A summary of proposed SWMP modifications was submitted with the City's Permit Renewal Application on February 28, 2017, but as stated previously, those modifications have not been implemented pending reissuance of the permit.

3.0 PROGRAM EXPENDITURES

A summary of the City's Environmental Services Division (ESD) funding sources, expenditures for the fiscal year (FY) 2019 – 2020, and a projection of the City's expenditures for FY 2020 - 2021 are provided in Table 2 (see orange highlight for surface water).

Table 2 – City of West Linn Environmental Services Fund for the FY ending June 30th, 2020			
	Department No. 432 Surface	Department No. 433 Sewer	Total Environmental Services Fund #505
Funding Sources:			
Charges for Services	\$ 1,015,500	\$ 2,800,000	\$ 3,815,500
SDC Reimbursement Fees	11,000	8,600	19,600
Interest	1,000	0	1,000
Transfer from other Funds	0	0	0
Misc.	63,000	0	63,000
Total	\$ 1,090,500	\$ 2,808,600	\$ 3,899,100
Expenditures			
Personal Services	\$ 400,200	\$ 160,000	\$ 560,200
Materials and Services	210,000	182,000	392,000
Capital Outlay	585,000	4,500	589,500
Transfers	1,267,000	0	1,267,000
Total	\$ 2,462,200	\$ 346,500	\$ 2,808,700
Projected Expenditures for 2020-2021			
Personal Services	\$ 450,000	\$ 200,000	\$ 650,000
Materials and Services	225,000	200,000	425,000
Capital Outlay	1,400,000	1,500,000	2,900,000
Transfers	1,267,000	0	1,267,000
Total	\$ 3,342,000	\$ 1,900,000	\$ 5,242,000

4.0 ENVIRONMENTAL MONITORING PROGRAM

The 2019-2020 reporting year represents the 3rd year implementing the 2017 Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP). The CCCSMP was originally developed in 2007, in an effort to implement an effective environmental monitoring program that adequately met all permit requirements and objectives for Clackamas co-permittees. A revision to the CCCSMP was made in 2012 to address instream, stormwater outfall, biological, mercury and pesticide monitoring requirements outlined in the 2012 Permit.

Beginning in the spring of 2016, the City, in collaboration with other Clackamas co-permittees, participated in a series of workshops to identify updates and modifications to the 2012 CCCSMP. Modifications reflected completion of some select, one-time monitoring obligations under the 2012 Permit and refinement of monitoring locations, parameters, and activities based on information collected over the permit term.

On December 16, 2016 the City submitted a 30-day notice to DEQ to approve the updates to the CCCSMP. As the City did not receive a response from DEQ within 30 days, the proposed modifications were deemed approved without written documentation. Implementation of the 2017 CCCSMP began July 1, 2017 and serves as an established agreement between 11 of the 13 Clackamas Co-permittees to conduct a coordinated monitoring effort. The following Clackamas County co-permittees are participants in the 2017 CCCSMP: Clackamas County Service District 1 (CCSD#1), Clackamas County, the cities of Gladstone, Happy Valley, Milwaukie, Oregon City, Rivergrove, West Linn and Wilsonville; Oak Lodge Water Services District (OLWSD) and the Surface Water Management Agency of Clackamas County (SWMACC).

As described in the 2017 CCCSMP, stormwater monitoring programs require two components. The first component is ***program monitoring***, which involves the tracking and assessment of programmatic activities, such as erosion and sediment control, stormwater conveyance system cleaning and maintenance, industrial and business inspection programs and public education and outreach. These are further described in the City's SWMP, through the use of performance indicators or metrics. The second component is ***environmental monitoring***, which includes visual monitoring and the collection and analysis of Instream and Stormwater Outfall samples. Visual monitoring efforts include Dry Weather Field Screening as described in the City's SWMP under the "Implement the Illicit Discharge Elimination Program" BMP. Results for dry weather field screening are detailed in Section 6.1, Table 5. The purpose of the CCCSMP is to address the environmental monitoring components of the 2012 Permit requirements.

In accordance with the 2017 CCCSMP, Instream Monitoring efforts are focused on collecting ambient water quality data during both dry weather (July 1 – September 30; May 1 to June 30) seasons and wet weather seasons (October 1 to April 30). As instream water quality tends to vary during storm events, sample collection is targeted during storm events and during dry weather conditions to allow the City to assess water quality impacts from MS4 discharges. For the 2017 CCCSMP, the City of West Linn continues to target storm events to meet their instream sampling requirement.

Instream Monitoring meets the following monitoring objectives per Schedule B.1.a of the 2012 Permit:

- 2) Evaluate the effectiveness of BMP's in order to help determine BMP implementation priorities.*
- 4) Evaluate status and long-term trends in receiving waters associated with MS4 stormwater discharges.*
- 5) Assess the chemical, biological and physical effects of MS4 stormwater discharges on receiving waters.*

Grab samples are collected instream during dry weather conditions. During storm events, a minimum of 3 time-spaced grab samples are collected throughout the storm event to provide a single time-composited sample. A composite sample collected during a storm event allows for capture of a larger portion of the storm hydrograph and better represents fluctuating pollutant concentrations.

Stormwater Monitoring addresses the following monitoring objectives from Schedule B.1 of the 2012 Permit:

- 1) Evaluate the sources of the 2004/2006 303 (d) listed pollutants.*
- 2) Evaluate the effectiveness of BMP's in order to help determine BMP implementation priorities.*
- 3) Characterize stormwater based on land use type, seasonality, geography or other catchment characteristics.*
- 5) Assess the chemical, biological and physical effects of MS4 stormwater discharges on receiving waters.*
- 6) Assess progress towards meeting TMDL pollutant load reduction benchmarks.*

In West Linn, stormwater monitoring efforts are focused on capturing storm-specific data from residential land use. The collection of stormwater samples allows for the identification of pollutant sources, characterization of stormwater and indication of the effects that stormwater runoff may have on instream water quality when compared with instream water quality data.

4.1 Summary of Monitoring Data

Instream and Stormwater monitoring locations and required frequencies are outlined in Table 3 below. Complete Instream and Stormwater Outfall sample results are presented in Appendix B.

During the 2019-2020 monitoring year, the City collected required Instream samples (3) during storm events at 3 sites and the required (2) dry weather samples at 3 sites. The City collected the required samples (3) during storm events for their Stormwater Outfall Monitoring program. One additional dry weather Instream sample was collected during the 2019-2020 fiscal year to address the missing sampling event from 2018-2019 and continue to meet the City's monitoring requirements of the 2017 CCCSMP.

Table 3 – West Linn Instream & Stormwater Outfall Monitoring Locations and Frequencies				
Site #	Creek Name, Location & Receiving Water	Collection Method	Required Frequency	Weather
Instream Monitoring				
WL_01	Trillium Creek at 3821 Calaroga Road that flows to the Willamette River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
WL_02	Tanner Creek at 4103 Imperial Drive that flows to the Willamette River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
WL_03	Unnamed Creek at Ryan Ct. & Johnson Road that flows to the Tualatin River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
Stormwater Outfall Monitoring				
WL_04	Barlow Creek Outfall at Summit St. & Horton Rd. that flows to the Willamette River	Composite	3/year	Storm Events Only

5.0 OVERVIEW OF PLANNING AND LAND USE CHANGES, URBAN GROWTH BOUNDARIES (UGB) EXPANSIONS AND NEW DEVELOPMENT ACTIVITIES

In West Linn, annexations are typically applicant and development driven. The City and the City Council do not typically initiate the annexation of property outside of the city limits.

5.1 Summary of Land Use Changes and UGB Expansions

West Linn did not approve any UGB expansions or prepare for any future expansions of the UGB into the Stafford area in FY 2019/20. There was one annexation and land use change in this FY:

- 0.93 Acres at 1480 Rosemont Road Changed from County FU-10 to R-7

5.2 Development Activities within the UGB

October 10, 2019 a Water Resource Protection Area permit was approved at 4327 Kelly Street to construct a single family home within water resource protection area under the hardship provision. This property is vacant with mostly grass and invasive plant life. A condition of approval requires the applicant to purchase off-site mitigation credits at a two-to-one ratio from the West Linn Parks Department a \$1.00/sf.

December 16, 2019 a 25-Lot subdivision, Water Resource Protection Area and Habitat Conservation Area permit was approved at 23190 Bland Circle. This property had an existing home, a stand of trees, and some accessory structures. The Habitat Conservation Area boundary was revised to correct an identified mapping error. No construction was proposed within the Water Resource Area. Deeded tracts were placed over the protected areas to protect trees and the resource. A site development permit was issued for this project on July 7, 2020

June 25, 2020 a Water Resource Protection Area, Willamette River Greenway, and Flood Management Area permits were approved at 1068 9th Street for the purposes of constructing a single-family home. This land was vacant prior to this approval. This site is permitted for up to 5,000 square feet of impervious surface/disturbed area to be treated in an on-site with a rain garden. The use of water permeable materials for the driveway and other hardscapes was a condition of approval. Site development and construction permits are under review but have not been issued.

The City of West Linn requires stormwater management for new and redevelopment activities exceeding 500 square feet of impervious surface in accordance with the City of Portland's Stormwater Management Manual (2016). Stormwater quality facilities installed during FY 2019-2020 include rain gardens, ponds, and storm chambers to retain stormwater onsite.

Table 4 – Public and Private Best Management Practices		
Type of Facilities	Drainage Area in sq. ft.	Impervious Area in sq. ft.
Private Rain Gardens (2)	5,529	5,529
Private Soakage Trenches (3)	9,274	9,274
Private Drywells (2)	6,650	6,650
Public Water Quality (2)	105,169	299,256
Total Square Feet	127,072	321,159
Acres	2.9	7.4

6.0 ADDITIONAL ACTIVITIES

This section supplements BMP activities documented in Appendix A and is organized by specific SWMP element.

6.1 SWMP Element #1: Illicit Detection & Elimination – Conduct Annual Dry Weather Field Screening

Dry weather field screening was conducted at 6 locations in August of 2019. There was no recorded precipitation for more than 72 hours prior to the inspections. No illicit discharges were found. When there is any flow quantity from an outfall, the City is required to take field readings for temperature, pH, dissolved oxygen, and conductivity. Conductivity can be strongly related with the total amount of dissolved material in water, and it can have some value in detecting non-stormwater related discharges. pH can also be a good indicator of non-stormwater discharges. Where there was flow, none of the readings exceeded the action levels for pH or conductivity, which is anything outside of the range of 6.5 to 8.5 for pH and exceeding 500 µS/cm for conductivity. Visual monitoring results from the dry weather field screening are summarized in Table 5 below.

Table 5 – Dry Weather Field Screening Results 2019-2020									
Site Number	Site Location	Creek Name	Flow Quantity	Clarity	Odor	Color	Foam or Sheen	Garbage Present?	Wood Debris
1	Brandon Place	Tualatin River	None	N/A	N/A	N/A	N/A	No	None
2	13 th St @ I-205	Bernert	Low	Clear	None	Clear	None	No	None
3	Imperial Drive	Tanner	Low	Clear	None	Clear	None	No	None
4	Hollowell Trail	McLean	Trickle	Clear	None	Clear	Foam	No	None
5	Barclay & Tompkins	Barlow	Low	Clear	None	Clear	None	No	None
6	19625 Old River Drive	Robin	No	N/A	N/A	N/A	N/A	No	None

6.2 SWMP Element #4: Education & Outreach – Promote Staff Education Related to Environmentally Friendly Solutions

The City's employee training and relevant conference attendance in FY 2019-2020 are summarized in Table 6 below. Due to COVID restrictions, employee training opportunities were significantly limited.

Table 6 – Employee Training & Relevant Conference Attendance			
Name of Training	Location	Dates	Number of Employees
ACWA Annual Conference	Bend	7/23 - 7/26/2019	1
APWA National Conference	Seattle	9/8 – 9/11/2019	2
Target Specialty Products – Turf and Ornamental Field Day	Gladstone	9/10/2019	4
OAFCA Safety and Stewardship Seminar	Wilsonville	11/7/2019	4

Table 6 – Employee Training & Relevant Conference Attendance

Name of Training	Location	Dates	Number of Employees
Chemical Applicator Course	Wilsonville	1/7/2020	2
2020 Erosion and Stormwater Management Summit	Keizer	1/28/2020	2
OAWU Annual Conference	Sunriver	3/3 – 3/6/2020	2

6.3 SWMP Element #5 BMP: Public Involvement and Participation

Schedule A.4.e of the City's 2012 Permit requires that the City provide opportunities for the public to participate in the development, implementation, and modification of the City's stormwater management program. Annual reports are provided to the public for comment. The 2018-2019 NPDES MS4 Annual Report was posted to the City's website for public review and the City received no comments. The annual report was submitted to DEQ before the deadline of November 1st, 2019.

6.4 SWMP Element #6 BMP: Post-Construction Site Runoff – Review and Update the Applicable Code and Development Standards related to Stormwater Control

The City's Storm Drainage Master Plan was adopted by the City Council in November 2019, and it included a comprehensive review of the West Linn Municipal Code, West Linn Public Works Design Standards and Standard Construction Specifications (PWDS), and the West Linn Community Development Code (CDC). The Master Plan includes recommended updates to the PWDS and CDC intended to improve consistency with the NPDES MS4 permit requirements and guide developers implementing stormwater management in the City. Some of the recommendations were incorporated into the PWDS in October 2018. Others are under further review and consideration by City Staff.

7.0 TMDL Implementation

This section supplements TMDL Implementation activities documented in Appendix C.

The City of West Linn Parks and Recreation Department plays a large part managing streams and open spaces as part of the City's temperature management strategies. Appendix C provides a comprehensive summary of temperature management activities to meet the City's TMDL Implementation Plan requirements. A summary of the City's Parks and Recreation Department outreach programs and current activities is provided below to supplement information provided in Appendix C.

1. Parks & Rec Volunteer Program: The Parks & Recreation Department has a robust volunteer program to remove invasive weeds and restore areas around streams in City parks including Mary S. Young, Burnside and Maddax Woods Parks. The program has the following goals:

- To recognize each volunteer's efforts through expressions of appreciation.
- To provide opportunities for volunteers to learn as much as possible about the organization's policies and programs.
- To place each volunteer in a position best utilizing their skills and in which they are most comfortable.
- To provide opportunity for growth and greater responsibility with helpful training and guidance.

The Department partners with SOLVE to host monthly work parties. See Appendix D for a complete list of SOLVE events.

2. Parks Recreation and Open Space Master Plan (PROS) Update: After an extensive public process, the Parks and Recreation Department updated their 2007 Master Plan. The overarching goal was to create a Master Plan that is relevant, implementable and inspiring to City residents. The Master Plan was approved by Council October 14, 2019.

3. West Linn Beaver Ambassadors: This is a natural resource awareness, education, and management program that uses beavers as a tool to teach and explore how we think about the natural resources in West Linn. Ambassadors work with schools, organizations, individuals, volunteers and at community events to celebrate and promote the function of beavers in our parks and rivers. By building dams, beavers slow water flow into the Willamette and Tualatin Rivers which helps to regulate flooding, attract wading birds like heron, and provide refuge to migratory fish. Woody inputs to streams increases insect biodiversity, (macroinvertebrates), which are a major food source for a variety of salmon and bird species. Larger mammals including fishers, deer, coyotes, river otters and foxes rely on beaver pond habitat. Dams create major changes to the hydrology and geology of our waterways. Sediment moving down streams becomes captured in beaver ponds and results in better water quality as streams trickle through, around or over beaver dams.

4. Monarch Butterfly Waystation: West Linn Parks and Recreation Department is one of more than 500 agencies across the U.S. participating in conservation activities to improve natural areas and promote the availability of milkweed, crucial to the survival of the Monarch. In 2015, Marylhurst Heights Park was selected as the first park location to be planted with milkweed. This park was selected because it receives full sunlight and is already established with a variety of native trees and shrubs while bordering a wetland area. There is no chemical pesticide application in the area immediately adjacent to the habitat areas, and instead it is maintained by hand weeding.

Several other high-quality habitat areas have been identified by the West Linn Parks and Recreation Department as pollinator friendly parks. Parts of Mary S. Young Park was cleared of invasive species and planted with milkweed seed as an Eagle Scout candidate project in 2016. Areas at the White Oak Savanna, Fields Bridge, Willamette and Tanner Creek Parks are also being planned to support the native butterflies and bees.

Appendix A

West Linn 2019-2020 Stormwater Management Plan (SWMP) Implementation Status

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle ○ indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

Appendix A – Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 1: Illicit Discharge Detection and Elimination								
Implement the Illicit Discharge Elimination Program	○	○	○	City of West Linn Public Works Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none">Document and implement the details of the City’s IDDE program in a Standard Operating Procedures manual by November 1, 2012.For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City’s NPDES MS4 Permit.Track and record all identified illicit discharges and how such discharges were removed.	(1) Track the status of completing the IDDE SOP manual. (2) Track the number, location, resolution, and enforcement activities related to any illicit discharge investigation conducted.	(1) The City of West Linn developed an IDDE SOP (effective date: November 1, 2012). The SOP includes guidelines for identification and enforcement of illicit discharges as well as how to inspect the priority outfalls for Dry Weather Inspections. (2) There were no potential illicit discharges reported or identified during the 2019-2020 reporting year.	
*Conduct Annual Dry Weather Field Screening	○	○	○	CWL-ESD	<ul style="list-style-type: none">Conduct dry weather, illicit discharge inspections annually at all priority outfall locations.Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012.If necessary, update existing mapping related to outfalls and priority outfall locations in accordance with field observations.	(1) Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities. (2) Summarize inspection results and indicate outfalls requiring sampling and/or investigations. (3) Indicate the outcome and resolution of any investigation activities conducted.	(1) Six high priority outfalls were inspected as part of the annual dry weather field screening activities on August 6, 2019. (2) Inspection results did not indicate the presence of any illicit discharges. Where water was found in the outfalls, the City tested for pH, temp., DO and conductivity. Results were within normal ranges according to the IDDE SOP, so it wasn’t necessary to take any samples. (3) Inspection results are provided in Section 6.1, Table 5 of this report. None of the inspection results warranted follow-up investigations. In accordance with the IDDE SOP, priority inspection locations were updated in 2012 to better reflect outfalls with solely stormwater contribution to receiving waters (i.e. avoiding inline facilities).	
Implement the Spill Response Program	○	○	○	CWL-ESD and Tualatin Valley Fire and Rescue (TVFR) (via contract with the City)	<ul style="list-style-type: none">CWL-ESD to respond to minor spills.Call Tualatin Valley Fire and Rescue to respond to significant spills.	(1) Indicate the number of spills reported to the City of West Linn Environmental Services. (2) Track the number of spills responded to by the City of West Linn Environmental Services and Tualatin Valley Fire and Rescue. (3) Indicate sources, causes, and types of discharges resulting from identified spill activities.	(1) No spills were reported to West Linn’s Environmental Services Division of Public Works. (2) The City of West Linn Environmental Services and Tualatin Valley Fire and Rescue (TVF&R) did not respond to any spills this reporting year as no spills were reported. (3) N/A	
Element 2: Industrial and Commercial Facilities								
Screen Existing and New Industrial Facilities	○	○	○	CWL-ESD	Notify DEQ of any existing or new industrial facilities within the City of West Linn jurisdiction that may potentially be subject to an industrial stormwater NPDES permit.	(1) Track the number of existing or new facilities subject to a stormwater industrial NPDES permit during the permit term.	(1) The one industrial business in West Linn, the West Linn Paper Company reopened in the summer of 2019. The facility operates under an NPDES permit issued by DEQ (facility #21489)	
Conduct Priority Facility Inspections	○	○	○	CWL-ESD	Inspect identified priority industrial or commercial facilities once during the permit term.	(1) Track the number and outcome of priority facility inspections conducted over the permit term.	(1) No commercial or industrial inspections were performed during the reporting period. An SOP was developed to determine which commercial properties should be considered priority. All of the high priority properties have been inspected throughout the permit term and the City is in the process of reinspecting since permit expiration and through the administrative process.	

* indicates there is more information in Section 6.0 Additional Activities

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle ○ indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

Appendix A continued – Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 3: Construction Site Runoff Control								
Implement the Erosion Control Manual	○	●	●	City of West Linn Public Works Engineering Division and Planning Department	<ul style="list-style-type: none"> Require submission of erosion control plans for development greater than 1000 ft². Require a copy of all 1200-C permit applications for development greater than five acres. Assess new and redevelopment applications for erosion control compliance during plan review. Require erosion and sediment control plans not in compliance to be amended prior to approval in conjunction with provisions outlined in the Clackamas County Erosion Prevention and Sediment Control Manual (2008). 	(1) Report any updates or modifications to the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual (2008). (2) Record the number of erosion control permit (City issued and DEQ issued) applications received. (3) Track the number of erosion and sediment control plan reviews completed.	(1) No updates or modifications to the 2009 Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual have occurred. (2) West Linn received a total of <u>33</u> Erosion Prevention Permit applications. (3) <u>33</u> Building Erosion Control plans were reviewed, amended, and issued.	
Provide Educational Information to Construction Site Operators	○	○	○	City of West Linn Public Works Department and Building Department	Provide educational information to construction site operators and the general public via brochures, flyers, pamphlets, and attachments to building and grading permit applications.	(1) Verify that this BMP was conducted.	(1) The City of West Linn Building Department has several building and permit related flyers at its front office window. Due to COVID-19 restrictions, City Offices have been closed to the public since March 2019, making this BMP less effective. An Environmental Protection Guide to Erosion Control can be found on the City website.	
Conduct Erosion Control Inspections and Enforcement	○	●	●	City of West Linn Public Works Engineering Division	<ul style="list-style-type: none"> Conduct an initial and a final site inspection on all sites with an erosion control plan for appropriate erosion control. As necessary, enforce appropriate erosion and sediment control in conjunction with the three-step progression as outlined on the City’s website. Require all disturbed areas to be permanently stabilized or vegetated prior to final engineering or building inspection. Ensure a minimum of one additional erosion control inspection is conducted during active construction on all sites with an erosion control plan. 	(1) Track the number of erosion control inspections conducted each year. (2) Report the number of notices of noncompliance and stop work orders issued, and describe the measures used to resolve the issue.	(1) The following number of erosion control (EC) inspections were conducted during the 2019 – 2020 reporting year: <ul style="list-style-type: none"> Preliminary Inspections: <u>10</u> Approved, <u>23</u> Approved w/conditions, <u>11</u> Denied Mid Inspections: <u>12</u> Approved, <u>26</u> Approved w/conditions, <u>10</u> Denied Final Inspections: <u>55</u> Approved, <u>0</u> Approved w/conditions, <u>8</u> Denied (2) No notices of non-compliance or stop work orders were issued during the 2019-2020 reporting year. Procedures for violations are listed under additional activities in the column to the right.	Permit violations are issued in a three step enforcement progression as follows: 1st a written notice of the inspection findings and required corrections (Warning) 2nd Should corrections not be implemented, a notice of non-compliance will be issued with the required corrections. 3rd Should corrections remain unaddressed a stop work order will be issued. Additionally, a stop work order may be issued at any time a permit violation occurs.
Element 4: Education and Outreach								
Provide Public Education and Outreach Materials Regarding Stormwater Management	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> Utilize newsletters, brochures, bill inserts, City web page, and radio advertisements to promote public awareness of stormwater quality issues and to provide information to encourage public reporting of illicit discharges. Continue to make annual monetary contributions to Tualatin Basin Public Awareness Committee (TBPAC). 	(1) Track the number, types, and topics of public educational materials dispersed to the public annually. (2) Indicate any large-scale public educational campaigns initiated during a given year. (3) Track coordinated public outreach activities with local co-permittees. (4) Record the number of catch basins stenciled in a given year. (5) Track amount donated to Tualatin Basin Public Awareness Committee (TBPAC) each year.	(1) Quarterly, the City dispenses approximately 50 TBPAC brochures (Nature-Friendly Home and Yard Care) to each of the city buildings where citizens are likely to visit: the first floor of City Hall, the Library and the Adult Community Center. Due to COVID-19 restrictions, no brochures were distributed at city facilities after March 2020. (2) Appendix’s C, D and E explain all of the public education that was completed this FY. (3) Due to COVID-19 pandemic, the city was unable to provide staff for outreach activities with local co-permittees during this reporting year. (4) No catch basins were stenciled this reporting year. (5) The City paid \$900 to TBPAC, as well as funded \$1500 to the Regional Coalition of Clean Rivers & Streams (RCCR&S)	West Linn sponsored several earth friendly teaching/volunteer opportunities in the City this fiscal year. <ul style="list-style-type: none"> Monthly Work Parties at Mary S. Young Park, Wilderness Park, Maddax Woods, Sahallie Illahee Park in partnership with SOLVE, (on hold during the months of April-May 2020) Ivy pulling, native plantings, chips spread on paths Arbor Week 4/5 - 4/11/20:: Native tree and shrub giveaways in celebration of West Linn as a recipient of the Tree City USA award Celebrated Pollinator Week June 22-28: Mason Bee House kit giveaway, Pollinator Plant giveaway, Hummingbird Attractor Craft
Implement a Pet Waste Program	●			City of West Linn Public Works Department & Parks and Recreation Department	<ul style="list-style-type: none"> If pet waste is observed as a problem upon routine maintenance activities at public property, install educational signs and distribute educational door hangers at homes in the immediate vicinity of the identified problem areas. Continue to provide pet waste baggies and disposal areas in City parks for disposal of domestic animal waste. 	(1) Report on activities conducted annually.	(1) The City of West Linn currently has <u>55</u> dog waste bag dispensers installed throughout the parks and open spaces. During the 2019 – 2020 reporting year, the City spent <u>\$7,998.00</u> on bags. City staff monitors water quality facilities for pet waste issues. If a facility is observed to have issues, City staff distributes door hangers in the neighboring area to educate the public about pet waste. There were no pet waste issues this reporting year.	

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Appendix A continued– Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 4: Education and Outreach Continued								
Participate in a Public Education Effectiveness Evaluation	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> Coordinate with other local, Phase 1 jurisdictions in providing/ compiling information regarding a public education effectiveness evaluation over the permit term. 	(1) Report on activities conducted annually.	(1) The City submitted a Public Education Effectiveness Evaluation to DEQ on July 1st, 2015. The Evaluation was completed as part of a coordinated effort with ACWA and NPDES MS4 Phase 1 and 2 permittees in Oregon.	
Ensure Staff Training for Pest Management	○	○	○	City of West Linn Public Works Street Division and Parks and Recreation Department	<ul style="list-style-type: none"> Provide training to Public Works and Parks department crews once every two years on proper pesticide and fertilizer application rates and techniques in conjunction with guidelines outlined in the IPM Plan. 	(1) Report on training conducted every two years.	(1) The Transportation Division of Public Works received a total of <u>13</u> hours of training in Pest Management. The Parks Department staff received a total of <u>38</u> hours of Integrated Pest Management training. A total number of hours trained: <u>51</u>	
Ensure Staff Training in Spill Response	○	○	○	Tualatin Valley Fire and Rescue	<ul style="list-style-type: none"> Provide OSHA HAZWOPER training and refresher courses to staff initially responding to spills annually. 	(1) Track the number of employees receiving OSHA HAZWOPER training annually.	(1) No City employee receives HAZWOPER training, instead we rely on TVF&R staff as needed for spill response. Also, the City relies on emergency response contractors for large spill emergencies.	
*Promote Staff Education Related to Environmentally Friendly Solutions	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> Conduct municipal training for employees associated with stormwater management in the City. Continue to participate in, and attend environmental and water quality related professional meetings and conferences. Continue to maintain a budget for employee attendance of conferences. Continue to coordinate with other local Phase 1 jurisdictions regarding regional water quality efforts. 	(1) Track the number of employees receiving training in stormwater management annually. (2) Track Operations and Engineering staff participation in professional organizations and attendance at relevant conferences.	(1) See Table 6 on Pages 9-10 for a complete listing of employee trainings on stormwater. (2) One West Linn staff is on the Board of Directors for the Association of Clean Water Agencies (ACWA) as the Chair. See Table 6 on Pages 9-10 for participation in professional organizations.	These 2 tracking measures are combined in Table 6 under Section 6.2 on pages 9-10.
Element 6: Post-Construction Site Runoff								
Implement Community Development Code and Public Works Design Standards for Stormwater Treatment	●	●	●	City of West Linn Public Works Department and the Planning Department	Per City’s Development Code, review all new development and applicable redevelopment for conformance with current City Stormwater Standards and Ordinances.	(1) Track the number of development applications reviewed for compliance with the current Stormwater requirements for treatment and detention. (2) Track any modifications to the list of currently approved structural stormwater treatment facilities. (3) Track private BMP’s that are implemented and their associated drainage areas.	(1) A total of <u>3</u> land use development applications were reviewed for compliance with stormwater treatment and detention standards. (2) No changes have been made to the list of currently approved structural stormwater treatment facilities. However, use of Infiltration facilities including, Soakage trenches and Storm Chambers are being increasingly used. (3) There were <u>7</u> new private facilities added in FY 2019-20 with <u>21,903</u> square feet of drainage area treated. See Table 4 in Section 5.2	
*Review and Update the Applicable Code and Development Standards related to Stormwater Control	●	●	●	City of West Linn Planning and Public Works Departments	<ul style="list-style-type: none"> Review the City’s current stormwater treatment standards for compliance with new NPDES MS4 permit language. Review the City’s Current public works development code provisions to ensure that applicable barriers related to the use of LID or GI techniques are minimized and eliminated where practicable. Update the City’s existing post-construction stormwater design standards and code language by November 1, 2014. 	Track progress related to the review of the City’s Code and development standards per provision in the NPDES MS4 Permit.	The 2016 version of the City of Portland Stormwater Management Manual has been adopted by the City of West Linn for design of stormwater facilities. West Linn’s Public Works Construction Standards and Municipal Stormwater Code have been reviewed and barriers to GI and LID use in projects have been identified and addressed. Rain gardens, detention ponds, and bio swales are typically used to meet the treatment standards specified in the NPDES MS4 permit.	

* indicates there is more information in Section 6.0 Additional Activities.

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Appendix A continued– Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012 SWMP)	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 7: Pollution Prevention for Municipal Operations								
Conduct Street Area Repair	○	●	○	City of West Linn Public Works Department	Ensure all road maintenance and repair activities implement appropriate erosion and sediment control to address potential water quality impacts.	(1) All City crew are required to implement erosion control measures at all times.	Both City crews and contractors are required to implement erosion control measures at all times.	The following verbiage is typical for construction plans: “Contractor shall provide erosion control best management practices per CWL Standards. Provide catch basin protection and continual sweeping so that no mud, sediment, or rock is left on the streets, with no additional compensation.”
Maintain Public Streets	○	●	○	City of West Linn Public Works Department	Sweep each street between 3 and 6 times a year.	(1) Track the number of sweeps conducted annually. (2) Track the volume of debris removed during sweeping activities. (3) Track the amount (volume) of deicing agent used annually.	(1) <u>6 City-wide sweeps</u> were conducted. (2) Approximately <u>868 cubic yards</u> of material were removed. (3) <u>50 Gallons of deicing agent</u> was used in the winter of 2019/20.	
Implement an Integrated Pest Management Program	○	○	●	City of West Linn Public Works Department and Parks and Recreation Department	<ul style="list-style-type: none">Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within City Parks, and around water quality facilities.Conduct work within public right-of-way only with certified, licensed applicators.	(1) Track any updates or modifications to the referenced IPM procedures and protocols. (2) Track the amount of money spent on pest management chemicals each year.	(2) The City of West Linn Parks Department spent approximately \$ <u>1,400</u> on pest management chemicals. The Public Works Department, which includes the Transportation, Water and Environmental Divisions spent approximately \$ <u>600</u> . The total spent by the City was \$ <u>2,000</u> .	The City of West Linn uses the City of Portland IPM Program as an informal guide.
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	○	○	○	CWL-ESD	<ul style="list-style-type: none">Inventory municipal facilities subject to this permit requirement by July 1, 2013.By July 1, 2013, identify and implement strategies to reduce the impact of pollutant discharges from these facilities.	(1) Track strategies used to minimize pollutant discharge.	No improvements were made to the Public Works Building or yard this reporting year.	

Appendix A continued– Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)								
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012 SWMP)	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 7: Pollution Prevention for Municipal Operations								
Control Infiltration and Cross Connections to the Stormwater Conveyance System	●	○	○	CWL-ESD	<ul style="list-style-type: none">Annually investigate for cracking and breakage, and repair as necessary based on the results of the inspection, a minimum of 5,000 linear feet of sanitary lines.Review new and redevelopment plan submittals for possible cross-connections.Inspect for potential cross-connections during dry weather field screening activities.	<p>(1) Indicate whether any sanitary sewer cross-connections were identified during sanitary line testing, during the plan review process, or during dry-weather field screening activities on an annual basis.</p> <p>(2) Describe any follow-up activities required for identified cross-connections.</p>	<p>(1) No cross connections were discovered while cleaning sanitary sewer lines, plan review or dry-weather field screening during the reporting period.</p> <p>(2) N/A</p>	
Conduct Master Planning for Stormwater Quality Improvement	●	●	●	City of West Linn Public Works Department	Ensure water quality is considered during the development of flood control CIPs.	<p>(1) Track any updates or modifications to the current Stormwater Master Plan approved by the City.</p> <p>(2) Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each.</p> <p>(3) Map the location and drainage area of water quality CIPs as they are constructed.</p>	<p>(1) The City of West Linn updated its Storm Drainage Master Plan (SDMP) to improve understanding of system characteristics and infrastructure in the city. The SDMP will support the prioritization of capital improvement projects (CIPs) and programmatic activities to address conveyance, capacity, and water quality for both existing and future development. The City’s SDMP was adopted November 12, 2019.</p> <p>(2) No CIP projects were implemented this reporting year.</p> <p>(3) This year we replaced the City’s primary web mapping application with a new product that has an updated user interface, better integration with the City’s Web GIS, and is mobile responsive. Additional applications to support field operations and analytics are in development. Efforts to improve the completeness and accuracy of our GIS data are ongoing.</p>	

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Appendix A continued – Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2019-2020	Additional Detail Related to Activities Conducted
Element 8: Stormwater Management Facilities Operation and Maintenance								
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	○	CWL-ESD	Perform cleaning and repair promptly based on inspection results.	(1) Track the length of conveyance system inspected. (2) Track the volume of debris removed during cleaning activities.	(1) <u>1000</u> linear feet of stormwater pipe was inspected. (2) <u>1</u> cubic yard of debris was removed during cleaning activities.	
Conduct Catch Basin Cleaning and Maintenance	●	●	○	CWL-ESD	<ul style="list-style-type: none">Inspect all public catch basins once per year, and clean as needed based on inspection results.Repair or replace catch basins promptly based on inspection results.Update tracking database during each maintenance cycle.	(1) Track the number of catch basins inspected. (2) Track the volume of debris removed during cleaning activities.	(1) <u>2873</u> catch basins were inspected, and <u>1142</u> catch basins were cleaned during the 2019-2020 reporting year. (2) <u>34</u> cubic yards of debris were removed from catch basins.	Two new catch basins were constructed by the stormwater crew this fiscal year.
Public Structural Control Facility Cleaning and Maintenance	●	●	●	CWL-ESD	Inspect public structural water quality facilities annually and maintain based on inspection results.	(1) Track the number and frequency of structural facilities inspected and maintained. (2) Track the volume of debris removed during cleaning activities.	(1) The following water quality facilities were inspected and maintained during the 2019-2020 reporting year: <ul style="list-style-type: none">Pollution Control Manholes = (145 PCMH’s), 145 inspected and 142 were Cleaned & Maintained.Detention Tanks = (27 Detention Tanks), 27 Inspected and 0 Cleaned or Maintained.Bio Swales = (18 Swales + Landscaping strips), 186 Hours were spent on maintaining them.Water Quality Ponds = (52 Ponds), 372 hours were spent on maintenance. (2) The volume of debris removed during cleaning activities was: 16 cubic yards from Pollution Control Manholes.	
Private Water Quality Facility Maintenance Program	●	●	●	CWL-ESD & Engineering Dept.	<ul style="list-style-type: none">Require new private water quality facilities to submit maintenance agreements to the City.Require submittal of annual reports related to inspection and maintenance activities for private water quality facilities with existing maintenance agreements.Continue to work to identify the responsible parties associated with private water quality facilities that do not have an existing maintenance agreement.Provide formalized structural stormwater facilities inspection and maintenance documentation to private facility owners by July 1, 2013.	(1) Track the number of new maintenance agreements submitted to the City each year. (2) Track number of new and existing annual maintenance reports received each year.	(1) <u>7</u> new Private Stormwater maintenance agreements were recorded through the City’s Engineering Department and the Clackamas County Recorder’s Office during the 2019-2020 reporting year. (2) A total of <u>35</u> inspection reports were received during the 2019-2020 reporting year after sending letters requesting private water quality facility owners to inspect and maintain their facilities. The inspection reports are due by October 1 st of each year for all facilities with or without a recorded maintenance agreements.	

Appendix B

West Linn 2019-2020 Monitoring Data

Appendix B – Stormwater Monitoring Data

Location - Culvert near 3821 Calaroga Drive											
INSTREAM MONITORING		Sample Site # WL_01									
Stream Name - Trillium Creek											
Analysis	Units	Grab Sample #1	Grab Sample#2	Grab Sample #3	Composite #1	Composite #2	Composite #3	Statistics			Notes
		Dry Weather	Dry Weather	Dry Weather	Storm Event	Storm Event	Storm Event	High	Low	Mean	
		10/24/2019	2/26/2020	6/24/2020	11/19/2019	5/22/2020	6/9/2020				
Conductivity - Field	μS/cm	146.9	156.9	158.2	62.8	95.5	71.9	158.2	62.8	115.4	4
Dissolved Oxygen - Field	mg/L	11.7	11.6	7.6	11.5	6.9	9.4	11.7	6.9	9.78	
Dissolved Oxygen - Winkler	mg/L	11.0	12.0	9.7	11.0	11.0	10.0	12.0	9.7	10.8	
Dissolved Oxygen - Field	% Saturation	107	98	78	104	91	87	107	78	94	
pH - Field	Std Units	8.75	8.66	7.97	8.61	8.77	8.65	8.77	7.97	8.56	
Temperature - Field	°C	10.1	7.9	16.5	10.7	12.4	12.3	16.5	7.9	11.7	
Ammonia Nitrogen Low Seal	mg/L	ND	0.1	ND	ND	ND	0.1	0.1	-	0.03	3
Copper	ug/L	1.40	1.05	ND	7.68	ND	4.04	7.68	-	2.36	3
Copper, Dissolved	ug/L	1.53	ND	ND	2.93	ND	3.52	3.52	-	1.33	3
E. coli	MPN/100mL	727	55	308	1553	156	1414	1553	55	702	1,2
Hardness	mg CaCO ₃ /L	72.0	76.0	82.0	36.0	60.0	48.0	82.0	36.0	62.3	
Lead	ug/L	ND	ND	ND	1.90	ND	0.28	1.90	-	0.36	3
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	0.22	0.22	-	0.03	3
Nitrate-Nitrite Seal	mg/L	0.451	0.656	0.603	0.601	0.767	0.560	0.767	0.451	0.600	
Ortho Phosphate Seal	mg/L	ND	ND	ND	0.112	ND	ND	0.112	-	0.018	3
Total Phosphate Seal	mg/L	0.07	ND	0.09	0.17	0.06	0.09	0.17	-	0.08	3
Total Solids	mg/L	220	200	110	170	100	110	220	100	152	
Total Dissolved Solids	mg/L	126	93	122	52	118	65	126	52	96	
Total Suspended Solids	mg/L	3	ND	3	58	2	10	58	-	13	3
Volatile Solids	mg/L	40	30	71	56	40	30	71	30	45	
Zinc	ug/L	13.0	14.7	19.9	69.0	23.7	25.8	69.0	13.0	27.7	
Zinc, Dissolved	ug/L	39.1	26.2	14.4	22.0	22.3	24.1	39.1	14.4	24.7	
Storm Event Rainfall	Inches	N/A	N/A	N/A	0.5	0.2	0.4				3

Notes: Red font indicates a potential QA/QC issue.

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

(4) Dissolved Oxygen (Winker Method) samples are taken once at site WL_01 site only, per sampling event as QA/QC for comparison with the electronic meter.

Appendix B – Stormwater Monitoring Data

Location - Culvert near 4103 imperial Drive											
INSTREAM MONITORING											
Sample Site # WL_02											
Stream Name - Tanner Creek											
Analysis	Units	Grab Sample #1 Dry Weather 10/24/2019	Grab Sample #2 Dry Weather 2/26/2020	Grab Sample #3 Dry Weather 6/24/2020	Composite #1	Composite #2	Composite #3	Statistics			Notes
					Storm Event 11/19/2019	Storm Event 5/22/2020	Storm Event 6/9/2020	High	Low	Mean	
Conductivity - Field	µS/cm	116.7	115.3	119.3	64.0	95.5	72.7	119.3	64.0	97.3	
Dissolved Oxygen - Field	mg/L	11.1	11.9	9.1	12.1	10.7	9.5	12.1	9.1	10.7	
Dissolved Oxygen - Field	% Saturation	101	101	92	111	98	90	111	90	99	
pH - Field	Std Units	7.95	7.90	7.67	8.14	7.68	7.43	8.14	7.43	7.80	
Temperature - Field	°C	10.9	8.8	15.8	10.9	11.2	12.7	15.8	8.8	11.7	
Ammonia Nitrogen Low Seal	mg/L	ND	0.2	ND	ND	ND	ND	0.2	-	0.03	3
Copper	ug/L	1.09	ND	ND	4.69	4.79	4.55	4.79	-	2.52	3
Copper, Dissolved	ug/L	1.12	2.18	ND	2.61	3.53	4.17	4.17	-	2.27	3
E. coli	MPN/100mL	54	55	1733	2420	96	921	1733	54	880	1,2
Hardness	mg CaCO ₃ /L	56.0	56.0	48.0	22.0	60.0	36.0	60.0	22.0	46.3	
Lead	ug/L	ND	ND	ND	0.60	ND	ND	0.60	-	0.10	3
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	-	-	-	3
Nitrate-Nitrite Seal	mg/L	0.593	1.01	0.95	0.474	0.770	0.482	1.01	0.474	0.713	
Ortho Phosphate Seal	mg/L	ND	ND	ND	ND	ND	ND	-	-	-	3
Total Phosphate Seal	mg/L	ND	ND	0.06	0.13	ND	0.06	0.13	-	0.04	3
Total Solids	mg/L	140	150	110	110	130	140	150	110	130	
Total Dissolved Solids	mg/L	92	77	101	36	79	53	101	36	73	
Total Suspended Solids	mg/L	2	2	2	23	ND	7	7	-	6	3
Volatile Solids	mg/L	40	30	30	58	30	30	58	30	36	
Zinc	ug/L	22.0	23.4	19.5	69.2	21.3	30.9	69.2	19.5	31.1	
Zinc, Dissolved	ug/L	24.5	40.1	10.3	45.7	21.3	28.0	45.7	10.3	28.3	
Storm Event Rainfall	inches	N/A	N/A	N/A	0.5	0.2	0.4				3

Notes: Red font indicates a potential QA/QC issue.

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

Appendix B – Stormwater Monitoring Data

Location - Culvert @ Johnson Rd & Ryan Ct											
INSTREAM MONITORING		Sample Site # WL_03									
Stream Name - Unnamed Creek											
Analysis	Units	Grab Sample #1 Dry Weather 10/24/2019	Grab Sample #2 Dry Weather 2/26/2020	Grab Sample #3 Dry Weather 6/24/2020	Composite #1	Composite #2	Composite #3	Statistics			Notes
					Storm Event	Storm Event	Storm Event	High	Low	Mean	
					11/19/2019	5/22/2020	6/9/2020				
Conductivity - Field	µS/cm	147.6	148.6	144.3	96.5	129.7	91.3	148.6	96.5	126.3	
Dissolved Oxygen - Field	mg/L	11.1	11.3	7.5	10.3	9.7	9.5	11.3	7.5	9.9	
Dissolved Oxygen - Field	% Saturation	98	97	77	96	89	92	98	77	92	
pH - Field	Std Units	7.70	7.65	7.48	7.36	7.50	7.40	7.70	7.36	7.52	
Temperature - Field	°C	10.7	9.0	16.7	11.7	11.7	13.4	16.7	9.0	12.2	
Ammonia Nitrogen Low Seal	mg/L	ND	0.1	ND	ND	ND	0.2	0.2	-	0.05	3
Copper	ug/L	1.06	ND	ND	3.75	2.38	3.79	3.79	-	1.83	3
Copper, Dissolved	ug/L	1.0	ND	ND	3.44	4.02	3.50	3.50	-	1.99	3
E. coli	MPN/100mL	72	26	73	1300	155	613	1300	26	373	1,2
Hardness	mg CaCO ₃ /L	68.0	64.0	84.0	52.0	56.0	44.0	84.0	44.0	61.3	
Lead	ug/L	ND	ND	ND	0.30	ND	ND	0.30	-	0.05	3
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	-	-	-	3
Nitrate-Nitrite Seal	mg/L	0.324	0.424	0.472	0.668	0.017	0.458	0.668	0.017	0.394	
Ortho Phosphate Seal	mg/L	ND	ND	ND	0.105	ND	ND	0.105	-	0.017	3
Total Phosphate Seal	mg/L	ND	ND	0.05	0.10	ND	0.06	0.10	-	0.04	3
Total Solids	mg/L	80	150	110	130	80	100	150	80	108	
Total Dissolved Solids	mg/L	101	86	106	67	111	74	111	67	91	
Total Suspended Solids	mg/L	2	ND	2	8	ND	2	8	-	2	3
Volatile Solids	mg/L	40	20	40	50	30	20	50	20	33	
Zinc	ug/L	47.7	38.3	30.5	74.6	43.0	43.2	74.6	30.5	46.2	
Zinc, Dissolved	ug/L	52.5	57.7	27.4	21.2	44.1	42.8	57.7	21.2	50.0	
Rain Fall Data in Inches	Inches	N/A	N/A	N/A	0.5	0.2	0.4				3

Notes: Red font indicates a potential QA/QC issue.

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

Appendix B – Stormwater Monitoring Data

STORMWATER OUTFALL MONITORING								
Location - Horton Rd. @ Summit St. Outfall								
Sample Site # WL_04								
Stream Name - Barlow Creek								
Land Use - Residential								
Analysis	Units	Composite #1	Composite #2	Composite #3	Statistics			Notes
		Storm Event	Storm Event	Storm Event	High	Low	Mean	
		11/19/2019	5/22/2020	6/9/2020				
Conductivity - Field	µS/cm	91.4	86.3	77.9	91.4	77.9	85.2	
Dissolved Oxygen - Field	mg/L	11.7	8.1	8.0	11.7	8.1	9.3	
Dissolved Oxygen - Field	% Saturation	114	70	79	114	70	88	
pH - Field	Std Units	8.77	7.72	7.41	8.77	7.41	7.97	
Temperature - Field	°C	13.0	12.7	14.0	14.0	12.7	13.2	
Ammonia Nitrogen Low Seal	mg/L	ND	ND	0.1	0.1	-	0.03	3
Copper	ug/L	5.0	3.52	11.0	11.0	3.52	6.51	1,2
Copper, Dissolved	ug/L	ND	3.02	10.3	10.3	-	4.4	
E. coli	MPN/100mL	411	17	1300	1300	17	576	
Hardness	mg CaCO ₃ /L	56.0	44.0	40.0	56.0	40.0	46.6	
Lead	ug/L	0.3	ND	ND	0.3	-	0.1	
Lead, Dissolved	ug/L	ND	ND	ND	-	-	-	3
Nitrate-Nitrite Seal	mg/L	1.11	1.72	1.06	1.72	1.06	1.30	3
Ortho Phosphate Seal	mg/L	ND	ND	ND	-	-	-	
Total Phosphate Seal	mg/L	0.06	ND	0.05	0.06	-	0.04	
Total Solids	mg/L	120	110	120	120	110	117	
Total Dissolved Solids	mg/L	115	88	48	115	48	84	
Total Suspended Solids	mg/L	3	ND	ND	3	-	0.5	3
Volatile Solids	mg/L	38	40	10	40	10	29	
Zinc	ug/L	31.1	7.14	21.1	31.1	7.14	19.78	
Zinc, Dissolved	ug/L	4.72	7.02	21.4	21.4	4.72	11.04	
Rain Fall Data in Inches	Inches	0.5	0.2	0.4				

Notes: Red font indicates a potential QA/QC issue.

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations.

Appendix C

West Linn 2019-2020
Willamette & Tualatin Rivers
TMDL Implementation Status

Appendix C

Tualatin and Willamette TMDL Implementation Plan Annual Report

Along with Section 7.0 in this report, Table C-1 summarizes the City's efforts to implement pollutant reduction measures specified in the Total Maximum Daily Load (TMDL) Implementation Plans (IPs) for the Willamette River and the Tualatin River. The City's NPDES MS4 permit serves as the Willamette River and Tualatin River TMDL IPs for point source TMDL parameters including bacteria, mercury, total phosphorus (as a surrogate for pH and chlorophyll a), and settleable volatile solids (as a surrogate for dissolved oxygen). Progress toward implementing best management practices (BMPs) to address these parameters is summarized in Appendix A of this document with additional information described in Sections 6.0 and 7.0 of this report. The respective IPs include management strategies to address temperature as a non-point source TMDL parameter.

Willamette River TMDL IP

The City of West Linn originally submitted its Willamette River TMDL IP to the Oregon Department of Environmental Quality (DEQ) on March 31, 2008. DEQ approved the IP on May 9, 2009. The Willamette River TMDL IP was updated April 30, 2014 and approved by DEQ August 18, 2014. The City submitted a combined Willamette and Tualatin River TMDL IP to DEQ in March 2019. The combined TMDL IP was approved by DEQ May 13, 2020. The TMDL parameters of concern for the Willamette River are: 1) bacteria, 2) mercury, and 3) temperature.

Tualatin River TMDL IP

The Tualatin River TMDL IP was originally submitted to DEQ in August 2003. It was revised and submitted to DEQ in June 2014 and was approved by DEQ on August 18, 2014. As mentioned previously, the City submitted a combined Willamette and Tualatin River TMDL IP to DEQ in March 2019. DEQ approved the combined TMDL IP May 13, 2020. There are five TMDL pollutant parameters of concern for the Tualatin River: 1) bacteria, 2) mercury, 3) temperature, 4) pH and chlorophyll a, with total phosphorus as a surrogate parameter, and 5) dissolved oxygen, with settleable volatile solids (SVS) as a surrogate parameter.

USGS and the City of West Linn

The City of West Linn entered into a new Joint Funding Agreement (JFA) with the U.S. Department of the Interior, U.S. Geological Survey (USGS) on October 1st, 2016 for Water Resource Investigations and to participate in a hydrologic streamflow data collection program on the Tualatin River. The JFA extends from 10/01/2016 through 9/30/2021. City costs will be \$9,045 over the 5 year term. The USGS number for this project is YF00D7U and the gauge is at river mile 1.8. Other local agencies that fund this study are: Clean Water Services (CWS), Clackamas County Water Environment Services, (WES), and the City of Lake Oswego.

Tualatin River Water Trail

In a Resolution (No. 2016-08) approved by the City Council on July 11, 2016, the City has been given permission to pursue the designation of the Tualatin River Water Trail (TRWT) as a National Water Trail (NWT); the City owns and manages Fields Bridge and Willamette Park as access points for the TRWT. The designation requires that the trail remain open to the public for at least the next 10 years, be designed, constructed and maintained according to best management practices and comply with all land use plans and environmental laws. The benefits of this designation will be to have access to funding opportunities, training and technical assistance. October 20, 2020, the Interior Department designated the Tualatin River as a National Water Trail.

Table C-1.Summary of Temperature Management Strategies for The Willamette River TMDL and the Tualatin River TMDL Implementation Plans							
BMP or Activity	Commitment/ Implementation Strategy	Measurable Goal(s)	Implementation Tracking/Performance Measure	Timeline	Milestones	Responsible City Department	Status (to be populated with each annual report)
Riparian Area Management	Enforce riparian buffer ordinances to protect existing vegetation and minimize impacts to surface waters due to development.	Continue to implement West Linn Community Development Code (WLCDC), Chapter 28 (Willamette and Tualatin River Protection) and Chapter 32 (Water Resource Area Protection), related to the following: <ul style="list-style-type: none">Chapter 28 - Implementation of the Willamette and Tualatin River Protection Areas (overlays) and habitat conservation areas (HCA) to comply with Title 3 and Title 13 requirements.Chapter 32 – Implementation of Water Resource Protection Areas (overlay and buffer widths) to comply with Title 3 and Title 13 requirements. Provisions of Chapter 32 apply to wetlands and riparian buffers city-wide.	Annually track CDC updates related to Title 3/ 13 compliance.	Ongoing	N/A - CDC is currently consistent with Title 3/ 13 compliance.	West Linn Planning Department	No updates to the CDC were made this reporting year.
		Continue to implement Ordinance 1542, relating to the Community Tree Ordinance and efforts to encourage and promote tree conservation and planting to maintain and increase tree canopy coverage.	Annually track code updates related to tree canopy coverage and enforcement.	Ongoing	N/A – Implementation is ongoing.	West Linn Planning Department	No code updates were made this reporting year.
	Utilize annually committed funds to restore and enhance riparian shade conditions and instream habitat at identified public and private areas.	Conduct a desktop GIS evaluation and/or ground truthing to evaluate current riparian vegetation conditions to determine whether replanting or maintenance is required.	Annually document results of the desktop evaluation/ ground truthing efforts. Prepare updated mapping to document findings.	November 2021	<ul style="list-style-type: none">Evaluate the riparian condition of high and medium priority planting opportunity areas identified in the 2009 Willamette Basin TMDL IP by November 2020. Identify maintenance needs.Assess and identify additional planting opportunity areas in the Tualatin Basin by November 2021.Prepare a maintenance and planting schedule for identified planting opportunity areas by November 2021.	West Linn Public Works	High and Medium priority planting opportunities have been evaluated. Two medium priority areas have been cleared of invasive species and planted with native species. Maintenance plans are currently being prepared.
		Conduct or financially support riparian planting activities city wide.	Track planting and vegetation management activities conducted city wide. Track planting and vegetation management activities specific to identified planting opportunity areas.	Ongoing	N/A – Implementation is ongoing.	West Linn Public Works	See Appendix D of City's MS4 NPDES permit for planting and management activities.
		Continue partnerships with and/or financial contributions to watershed councils, non-profit organizations, and private citizens in support of riparian planting projects. Partnership may include in-kind staff participation on governing boards or technical support for sponsored projects on public property within the City. Financial contributions may be direct material or monetary.	Annually document partnership efforts. Annually document any shade planting incentives (materials, trainings, etc.) provided to citizens.	Ongoing	N/A – Implementation is ongoing.	West Linn Public Works	See Appendix D of City's MS4 NPDES permit for partnership efforts.
		Implement capital projects with a water quality component.	Complete one capital project with a water quality component to benefit stream health over the 5-year TMDL implementation period.	Annually track status of the City's master plan update and capital project implementation.	Ongoing	N/A – Implementation is ongoing.	West Linn Public Works
Design Standards for New and Redevelopment	Implement design standards that promote infiltration.	Promote the use of infiltration for stormwater management through the City of West Linn Public Works Design Standards, Section 2.	As applicable, document changes or updates to the City's stormwater design standards.	Ongoing	N/A – Implementation is ongoing.	West Linn Public Works	No updates or changes were made to stormwater design standards this reporting year.
Public Education for Temperature Management	Continue to provide information regarding temperature related issues and shade preservation efforts to the public.	Using the City newsletter, website, or other media platform, annually distribute a minimum of one article related to temperature issues and instream habitat management.	Annually track the number and content of temperature – related articles distributed to City residents.	Ongoing	N/A – Ongoing implementation is addressed through implementation of the City's SWMP.	West Linn Public Works	Printed materials are distributed at City facilities and are restocked on a quarterly basis.
		Promote regional or local programs targeted at improving habitat on private property using City outlets. Instruction to include the importance of maintaining riparian buffers for shade and temperature management.	Annually document the methods of information distribution conducted by the City.	Ongoing	N/A – Implementation is ongoing.	West Linn Public Works	The City promotes regional and local programs through its partnerships with RCCR&S and TBPAC.
Environmental Monitoring	Monitor surface water temperature to document status and evaluate trends with respect to water quality standards.	In conjunction with NPDES MS4 requirements and implementation of the Coordinated Clackamas County Monitoring Plan (CCCSMP), conduct sampling for temperature at required instream monitoring locations.	As applicable, annually report any modification to existing instream temperature monitoring activities.	Ongoing	N/A – Ongoing implementation is addressed through implementation of the City's NPDES MS4 permit.	West Linn Public Works	No modifications to existing instream temperature monitoring were made this reporting year.

Appendix D

West Linn 2019-2020

SOLVE Events within the City of West Linn

Appendix D – SOLVE Events within the City of West Linn in FY 2019-2020 (in order of dates)

Site Name	Event Name	Event Date	Event Duration	Partner Organization	Pounds Trash	Area Cleared of Invasives (Sq. Ft.)	Trees Planted	Shrubs Planted	Total Volunteers	Adults	Youth	Mulched	Caged
Mary S. Young State Park	Mary S. Young Park Work Party for July	07/6/2019	3	City of West Linn Parks & Recreation	0	100			20	18	2		
Maddax Woods	Maddax Woods Monthly Cleanup for July	07/20/2019	4	Friends of Maddax Woods	15	800			17	5	12		
Mary S. Young State Park	Mary S. Young Park Work Party for August	08/03/2019	3	City of West Linn Parks & Recreation	0	2500			31	27	4		
McLean House and Park	Clean-Up at McLean House and Park	08/17/2019	3	Friends of McLean Park and House	0	0			9	5	2		
Maddax Woods	Maddax Woods Monthly Cleanup for August	08/17/2019	4	Friends of Maddax Woods	4	500			15	7	8		
Sahallie Illahee Park	Sahallie Illahee Park Habitat Restoration	08/24/2019	2	City of West Linn Parks & Recreation	0	1600			16	9	7		
Mary S. Young State Park	Mary S. Young Park Work Party for September	09/7/2019	3	City of West Linn Parks & Recreation	0	1200			16	12	4		
Maddax Woods	Maddax Woods Monthly Cleanup for September	09/21/2019	4	Friends of Maddax Woods	0	100			6	6	0		
Mary S. Young State Park	Mary S Young Park Cleanup & Habitat Restoration	09/21/2019	3	City of West Linn Parks & Recreation	5	7000			107	41	66		
Palomino Way Green Space	Streamside Ivy Removal Trillium Creek Trail	09/21/2019	3	City of West Linn Parks & Recreation	0	100			3	3	0		
Wilderness Park	Wilderness Park Ivy and Blackberry Removal	9/28/2019	3	City of West Linn Parks & Recreation	10	2300			17	15	2		
Mary S. Young State Park	St. John the Apostle School at Mary S. Young	9/30/2019	3	St. John The Apostle School	10	0			195	10	185		
Mary S. Young State Park	Mary S. Young Park Work Party for October	10/5/2019	3	City of West Linn Parks & Recreation	0	6000			25	20	5		
Burnside Park	Burnside Park Restoration October	10/19/2019	3	City of West Linn Parks & Recreation	0	7500			6	3	3		
Maddax Woods	Maddax Woods Monthly Cleanup for October	10/19/2019	4	City of West Linn Parks & Recreation	0	2000			9	9	0		
Wilderness Park	Wilderness Park Planting and Ivy Pull	10/26/2019	3	Friends of Wilderness Park	10	11000	5	105	23	8	15		
Mary S. Young State Park	Mary S. Young Park Work Party for November	11/2/2019	3	City of West Linn Parks & Recreation	0	3500			35	18	17		
Burnside Park	Burnside Park Restoration	11/16/2019	3	City of West Linn Parks & Recreation	0	150			4	4	0		
Maddax Woods	Maddax Woods Monthly Clean Up	11/16/2019	4	City of West Linn Parks & Recreation	1	2000			23	18	5		
Wilderness Park	Ivy Pull and Chipping	11/23/2019	3	Friends of Wilderness Park	1	50			14	10	4		
Mary S. Young State Park	Mary S. Young Planting	12/7/2019	3	City of West Linn Parks & Recreation	0	0	30	970	103	79	24	371	

Appendix D continued – SOLVE Events within the City of West Linn													
Site Name	Event Name	Event Date	Event Duration	Partner Organization	Pounds Trash	Area Cleared of Invasives (sq. Ft.)	Trees Planted	Shrubs Planted	Total Volunteers	Adults	Youth	Mulched	Caged
Sahallie Illahee Park	Sahallie Illahee Work Party	12/14/2019	3	Friends of Maddax Woods	10	2100			21	6	15		
Burnside Park	Burnside Nature Park Restoration	12/21/2019	3	City of West Linn Parks & Recreation	0	500			3	3	0		
Maddax Woods	Maddax Woods Cleanup	12/21/2019	4	City of West Linn Parks & Recreation	15	200			9	5	4		
Wilderness Park	Wilderness Park Habitat Restoration	12/28/2019	3	Friends of Wilderness Park	2	1400			22	14	8		
Wilderness Park	Wilderness Park Habitat Restoration	12/28/2019	3	Friends of Wilderness Park	10	3000	7	20	26	10	16	40	
Wilderness Park	Wilderness Park Habitat Restoration	12/28/2019	3	Friends of Wilderness Park	2	10000		25	55	19	36	20	
Mary S. Young State Park	Mary S. Young Park Work Party	01/4/2020	3	City of West Linn Parks & Recreation	0	2200			27	19	8		
Sahallie Illahee Park	Sahallie Illahee Park Work Party	01/11/2020	3	City of West Linn Parks & Recreation	1	1300			14	9	5		
Maddax Woods	Maddax Woods Monthly Cleanup for January	01/18/2020	4	City of West Linn Parks & Recreation	0	1000			51	36	15		
Wilderness Park	Ivy Pull and Chipping	01/25/2020	3	Friends of Wilderness Park	0	4000		25	35	28	7		
Mary S. Young State Park	Mary S. Young Work Party	02/1/2020	3	City of West Linn Parks & Recreation	15	2000			40	21	19		
Burnside Park	Burnside Nature Park Restoration	02/15/2020	3	City of West Linn Parks & Recreation	15	2000			17	17	0		
Wilderness Park	Invasive Plant Removal	02/22/2020	3	City of West Linn Parks & Recreation	1	55			13	11	2		
Mary S. Young State Park	Mary S. Young Park Work Party for March	03/7/2020	3	City of West Linn Parks & Recreation	0	100			26	23	3		
Mary S. Young State Park	Mary S. Young DIY Restoration	05/17/2020	2	City of West Linn Parks & Recreation	0	1800			29	17	12		
Mary S. Young State Park	Mary S. Young Park Work Party for June	06/6/2020	3	City of West Linn Parks & Recreation	0	1000			20	2	18		
Maddax Woods	Maddax Woods Monthly Cleanup for June	06/20/2020	4	Friends of Maddax Woods	10	200			4	4	0		
Totals:					137	81,255	42	1,145	1,106	571	533	431	0

Appendix E

Regional Coalition for Clean Rivers & Streams Annual Report

July 1, 2019 – June 30, 2020



REGIONAL COALITION FOR CLEAN RIVERS AND STREAMS

FISCAL YEAR 2019-2020 ANNUAL REPORT

SEPTEMBER 23, 2020

PREPARED BY:



enviroissues



FY 2019-20 OVERVIEW

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work – initiated in the mid-1990s – of providing coordinated messaging to target behaviors linked to stormwater pollution from residential sources across the Portland metropolitan region. The Coalition continues its brand recognition efforts by consistently using the previously developed *The River Starts Here* creative concept in its various materials. Other Coalition activities in the 2019-20 fiscal year included sponsoring and promoting the Coalition and its messages at community events.

Coalition participants include:

- Clackamas Water Environment Services
- Clean Water Services
- City of Gladstone
- City of Gresham
- City of Lake Oswego
- City of Milwaukie
- City of Oregon City
- City of Troutdale
- City of West Linn
- City of Wilsonville
- Oak Lodge Water Services
- Multnomah County
- Washington County

This report covers the time frame of July 1, 2019 - June 30, 2020.

BACKGROUND

As identified in the 2013 Strategic Plan, the mission of the Coalition is to collaborate across the Portland metropolitan region to improve watershed health by changing household behaviors, reducing polluted runoff and connecting people with their local waterways. Coalition members leverage their collective resources to conduct outreach to communities across the region with common stormwater information and messages. Coalition activities complement individual agency efforts to raise awareness of stormwater runoff and affect behavior change to prevent pollution and protect regional surface water quality. Coalition activities support commitments relative to state permits under the federal Clean Water Act (administered by the Oregon Department of Environmental Quality), including Total Maximum Daily Load and Municipal Separate Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition represent agencies that serve diverse population sizes from very small (Troutdale) to very large (Clean Water Services). As such the ability to run programs specific to their community is limited by funding and staffing. The Coalition represents an efficient, effective method to combine stormwater outreach funds. Coalition members continue to provide funding for the collaborative work each fiscal year based on the size of the respective community. The group shares



funds with Multnomah county acting as the fiscal agent to purchase associated consulting services, advertising, materials and event sponsorships. By sharing resources, the group is able to reach many thousands of people in the region compared to what entities can typically achieve on their own.

The Coalition targets behaviors from residential sources linked to stormwater pollution prevention. Information and messages used by the Coalition are intended to reach those making purchasing and management decisions about yard care, pets and auto maintenance activities – some of the most likely sources of stormwater pollution from residents. Coalition activities address a range of surface water contaminants, including nutrients and toxics from fast-releasing synthetic fertilizers and pesticides applied to yards and lawns, pollutant loads from car washing soaps, metals and other toxics from vehicle maintenance (and unmaintained vehicles), *E. coli* from pet waste, turbidity from eroded soils and other contaminants from illicit discharges.

Key Messages

The Coalition's key messages focus on raising awareness about pollution from stormwater runoff and motivating actions to protect surface water quality through action at the household level. The key messages are:

- Stormwater runoff is now our number one source of water pollution. When it rains, pollutants from your home, car, and garden wash into our rivers and streams.
- Bacteria from uncollected dog waste washes into our rivers and streams. You can protect our water by picking up after your pets.
- Yard and garden products wash into our rivers and streams. You can protect our water by eliminating these products or using compost and slow-release fertilizer.
- Motor oil, solvents, and soaps wash into our rivers and streams. You can protect our water by keeping car-care chemicals out of storm drains, diverting wash water onto your landscaping, and going to a car wash.

FY 2019-20 ACTIVITIES AND RESULTS

Activities during the reporting period focused on continuing to implement the Coalition's strategic plan with messaging and outreach using *The River Starts Here* creative concept, developed in FY 2014-15. This concept was informed by the research summary about stormwater behavior (DHM Research, Feb. 2014) used by Coalition members in partial fulfillment of the FY 2014-2015 MS4 permit requirement to evaluate the effectiveness of permittee's education and outreach program.

Strategic Plan Implementation

A strategic plan, adopted in 2013, continued to guide Coalition efforts during the fiscal year. The Coalition acted on strategic plan goals as summarized below:

Goal 1: Maintain a functioning Coalition

Each year, Coalition members prepare an updated cost sharing approach and budget, which was implemented in 2019-20. Members of the Coalition share their knowledge with the broader regulated communities in Oregon via the Association of Clean Water Agencies (ACWA). Members have presented on prioritizing public behaviors to maximize pollutant reduction success and on a water pollutant risk assessment database at the past two spring ACWA conferences.



Goal 2: Develop and adapt creative products to fulfill the Coalition's mission

The Coalition continued to use collateral materials developed with *The River Starts Here* creative concept through event promotion and digital advertising, including materials such as temporary tattoos, T-shirts for staffing, message banners for booths, and a large durable watershed map. Coalition members use collateral materials through individual outreach events held throughout the year.

Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for a future collaboration among agencies. Total member representation in the Coalition has increased in the past few years, bringing in more regional partners.

THE RIVER STARTS HERE MESSAGING AND OUTREACH

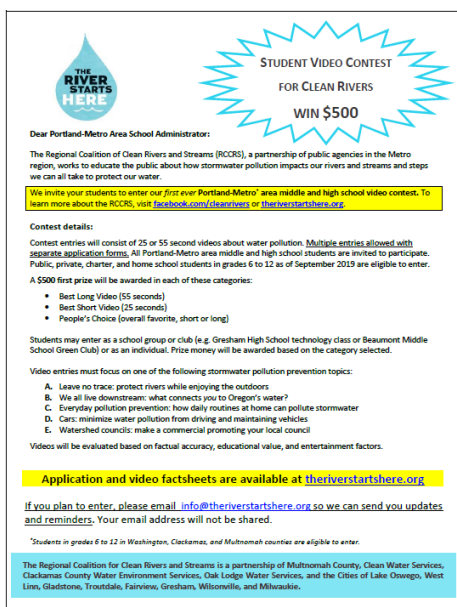
COMMUNITY EVENTS AND AGENCY COLLABORATION

Representatives of member agencies promoted Coalition messages throughout the fiscal year using Facebook, Instagram, YouTube and Twitter. The Coalition produced collateral materials emphasizing *The River Starts Here* brand and messages to support community events. In addition, the Coalition adapted to the changing landscape of COVID-19 by increasing social media posts and digital events. The primary focus of digital outreach was to drive engagement in the first annual Student Video Contest.

Watershed Village – The Big Float

In the summer of 2019, the Coalition staffed a large interactive booth at the Big Float along with a number of regional watershed councils including Tryon Creek, Oswego Lake, Johnson Creek, Columbia Slough and Clackamas River. The booth served lemonade, had a salmon obstacle course, a large watershed map that people put dots on to learn what watershed they lived in and a social media photo booth with props for people to take photos with. An estimated 500 or more people visited the booth.





Student Video Contest

Beginning in summer 2019, the RSH team developed a YouTube page in order to host a student video contest. The team also developed a region-wide mailing list including public, private and homeschooling organizations, and collected emails whenever possible. The team developed an application, rules, a waiver, added materials to its website and launched the first annual 6th-12th grade Student Video Contest in fall 2019 with submissions due in 2020. Finally, the team sent a mailer to 229 schools in fall and winter.

Categories included first prize of \$500 for best long video (55 seconds), best short video (25 seconds) and people's choice. The team created fact sheets to support student learning and video content accuracy on the topics of 1) Leave No Trace 2) Pollution from Cars 3) What Connects You to the River 4) Pollution from Everyday Behaviors.

The Coalition received an overwhelming response from participants and viewers who learned about our connection with local waterways. In this first year, local youth environmentalists passionate about telling their story responded to the call and helped create videos about how we each have a role in protecting rivers and streams. Overall, the Coalition received 46 entries, of those 36 were deemed completed applications with appropriate content accuracy and were uploaded to the Coalition's YouTube site.

On June 6, 36 middle and high school student finalists from throughout the Portland Metro area shared videos to encourage clean water behaviors like reducing pesticide use, practicing Leave No Trace principles in natural areas and traveling by transit, bike and foot to reduce pollution. Expert judges from the film industry, governments and river organizations voted to select the winners for the best 55-second and 25-second videos. From June 6-19, students rallied friends and family to vote for them to win the People's Choice Award for the most liked, commented, viewed and shared video. Over 4,000 community members watched student videos, which were viewed over 11,000 times. Viewers submitted over 1,800 likes and added hundreds of comments. Commenters shared their enthusiasm for these creative videos.



"I always forget that everyday activities can be harmful to my community whether I intended it to or not, I will definitely remember the car wash part!" – Margo Flanagan

"This is the greatest public service announcement for keeping our waters clean I have ever seen." – Robert Pirtle



In July, the Coalition met over Zoom to finalize all winners and honorable mentions. The Coalition will report on the winners and awards in the next fiscal year's annual report.

River Starts Here Blog

In May 2020, the Coalition began refreshing the website and added a blog. The blog created new opportunities for agency collaboration, event cross-promotion and driving traffic to partner resources. This fiscal year, the blog promoted upcoming events including The Big Float, the East Multnomah Soil and Water Conservation District 2020 Yard Tour and local native plant sales.



WEBSITE: TheRiverStartsHere.org

TheRiverStartsHere.org launched in June 2015. The website uses a modern design featuring *The River Starts Here* creative assets. It features an image slider highlighting Coalition messages and includes links to member websites and additional web resources. During the fiscal year, the Coalition met and analyzed the website layout and content areas and planned a full website refresh in August 2020.

Summary website analytics for the fiscal year are shown below. Statistics in parenthesis are the difference between last year's and this year's data. Positive changes are shown in green, negative changes are shown in red, and inconsequential changes are shown in lavender. New data points are presented in black.

Total sessions: 2,500 (▲ 114 %)

- **Users:** 1.7k (▲ 64%)
- **Traffic type**
 - Direct: 52% (▲ 160%)
 - Social: 33% (▲ 1,890%)
 - Organic (search engine): 14% (▼ 60%)
 - Referral: 1.2% (▼ 95%)
- **Bounce rate:** 77% (▼ 10%)
- **Time on site:** 1:39 (▲ 171%)

During this fiscal year, web traffic has increased rapidly. In particular, traffic from social media to the website increased 1,890%. This change is due in part to the hosting Student Video Contest content on the website. The River Starts Here also increased post frequency on social media and linked more regularly to the website. Finally, COVID-19 increased social media and website engagement in 2020.

SOCIAL MEDIA

The Coalition continued posting to its social media channels with an increase in frequency compared to previous years. As in past years, the Coalition concentrated social media activity in the spring and



summer time period when households in the region have an increased interest in yard and garden activities relevant to surface water quality. Social media messages build on existing conversations and connect with organizations around the region. While spring and summer are also times for promoting events, this year presented a different challenge with the COVID-19 pandemic. The Coalition focused on promoting educational webinars and online events as opposed to in person events such as restorations and river cleanups.

Statistics in parenthesis are the difference between last year's and this year's data. Positive changes are shown in green, negative changes are shown in red, and inconsequential changes are shown in lavender.

Facebook page, The River Starts Here

A summary of Coalition Facebook account use during the fiscal and as of July 1, 2020 is as follows:

- **Followers ("likes"):** 1,684 (▲110)
- **Weekly organic reach:** 193 (▲29)
- **Posts:** 89 (▲16)

Facebook follower demographics breakdown:

Age	Female	Male	Total by Age
18-24	1%	1%	2%
25-34	11%	7%	16%
35-44	19%	8%	27%
45-54	16%	8%	24%
55-64	10%	4%	14%
65+	9%	4%	13%
Total by Gender	66%	32%	-

Table 1: Facebook followers by age range and gender. A large portion of the Coalition's Facebook audience is made up of women from age 35-54.

The Coalition's social media following is dominated by women. In particular, the Coalition Facebook mostly reaches women who are 35-54. The Coalition's Facebook following has also increased its reach to older people while reaching fewer young people.

Facebook ads, The River Starts Here

The Coalition continued to use low cost social media advertising as part of its campaign in FY 2019-20. Continuing to focus on defined target audiences for messages (male v. female, age level for behavior, etc.) as well as targeting by ZIP code is a primary strategy. The majority of advertising was on Facebook.

A summary of Facebook ad engagement during the fiscal year is as follows:



- **Advertisements run:** 5
- **Reach:** 102,586
- **Link clicks and video views:** 31,305

Ads or Boosts during FY 19-20

Topic	Engagement	Reach	Impressions
The Big Float 2019—Watershed Village promo	94	781	NA
24 th Annual Columbia Slough Regatta	82	2,602	4,406
Sandy River Annual Float Clean -Up	406	16,418	26,660
Johnson Creek Annual Clean-Up	153	7,696	12,021
Harmful Algal Blooms educational post	1,159	60,603	131,800
12th Annual Johnson Creek Clean-Up	120	8,235	12,754
Tualatin Tire Collection Event	20	2,958	6,113
Where does Stormwater Go—Downspouts (Portland edu video)	82	1038	NA
Salmon recovery & toxics—educational-engagement	412	10,192	19,395
Car Washing techniques for water protection educational video (from City of Salem)	2,445	8,245	16,307
Willamette Riverkeeper Clean-Up	106	8,384	11,962
Student Video Contest post	18	504	
Student Video Contest	1,276	13,196	25,479
Student Video Contest -deadline extended (video link)	30,037	21,756	39,157
Pesticides Harm Pollinators/Backyard Habitat	175	1860	NA
Columbia Slough anti-littering promo	1,173	24,414	64,382
Follow Us: River Starts Here	5	15,555	34,849
JCWC Watershed Wide Event	113	5,999	12,026
Totals	190,723	210,436	2.5M
Total Cost			\$3,503*

Engagement is an interaction such as a like, comment, or click thru. **Reach** is the number of individuals who saw or interacted with the post. **Impressions** are the number of times placed by Facebook including being show to individuals more than once. NA=unpaid spot.

*Some ads also ran on Instagram.



Twitter, @riverstartshere

A summary of use during the fiscal year is as follows:

- **Followers:** 1,438 (▼32)
- **Tweets:** 53 (▲4)

Instagram, @theriverstartshere

A summary of Coalition Instagram account use during the fiscal and as of July 1, 2019 is as follows:

- **Followers:** 164 (▲160)
- **Posts:** 26 (▲14)



Instagram follower demographics breakdown:

Age	Female	Male	Total by Age
13-17	1%	4%	2%
18-24	5%	2%	4%
25-34	39%	35%	37%
35-44	28%	24%	26%
45-54	18%	24%	20%
55-64	4%	8%	6%
65+	6%	4%	6%
Total by Gender	62%	38%	-

Table 3: Instagram followers by age range and gender. A large portion of the Coalition's Instagram audience is made up of women from age 25-44.

The Coalition's move in 2019-2020 to consolidate Instagram handles and grow its audience has had tangible effects on the diversity of demographics reached. The Instagram audience is dominated by people ages 25-34. The Coalition can continue to build a following from youth by promoting YouTube and Instagram content while reaching older people through Facebook.

YouTube, The River Starts Here

A summary of the Coalition YouTube account during the fiscal year is as follows:

- **Subscribers:** 9
- **Videos added:** 5
- **Watch time (hours):** 28.5
- **Views:** 225

In 2019, the River Starts Here created a YouTube account for the Student Video Contest. During this fiscal year, the channel saw a modest increase in views and subscribers. The People's Choice Award voting for the student video contest occurred in July 2020. The annual report for the next fiscal year will capture the large increase in YouTube audience.



FY 2019-20 BUDGET

Category	Services	Investment
Event sponsorship and promotion		
Big Float	2019 Big Float Sponsorship	\$3,000
Materials		
Mailers	Environmental Paper and Print – Student video contest mailer	\$424
Mailers	Student video contest mailer	\$120
Stickers	1000 The River Starts Here stickers	\$510
Banner	Streamside forest banner	\$125
Banner	Watershed village banner	\$100
Advertisement		
Facebook	Facebook digital advertisements	\$3,681.85
Coordination support		
Envirolssues	Meeting facilitation and member coordination, website maintenance, social media authoring	\$18,000
	TOTAL	\$25,960.85

Table 3: FY 2019-20 expenditures



OBSERVATIONS

The following observations are based on the results of FY 2019-20 activities and suggest future direction the Coalition may take in its mission of educating the public about the impact of stormwater runoff pollution on the health of our rivers and streams.

The FY 19-20 efforts consisted of the Coalition continuing to use online social media advertising, contracting with EnviroIssues to assist with increasing social media post frequency and meeting coordination and data analytics, building a YouTube page and creating thematic playlists and switching Coalition meetings to digital. As noted in the advertising review section, The Coalition's digital strategies were effective.

The Student Video Contest **outreach through schools proved challenging**, as only two teachers responded to the video contest by involving their students resulting in about 20 submissions. To compensate, the Coalition extended the deadline and purchased Instagram advertising that was geotargeted to the region's young people which resulted in

a total of 46 entries. This **digital outreach strategy was successful**. The group noted that given the amount of time it took to receive, organize and upload the videos, review them for accuracy and score them, having many more entries would be incredibly time intensive. As such, the outreach strategy will not be much altered. The group is very pleased with the quality of the videos submitted and the enthusiasm shown by the engaged young people and will continue this approach to engage the next generation of adults in addition to the adult population already engaged via Facebook and Twitter. The Coalition will continue to focus on Instagram and YouTube content targeted to reach young people.

Next fiscal year, the Coalition will conduct a **three-fold student outreach strategy** through school mailers, Instagram ads and through other community-based organizations, especially those serving marginalized populations and BIPOC youth, in an effort to achieve more diversity, equity and inclusion. The Coalition will now be able to use student videos from the 2019-2020 competition as collateral for social media ads and posts.

